932 Snow-Thro

Service Manual

Models 932025-027, 029-034, 302-307

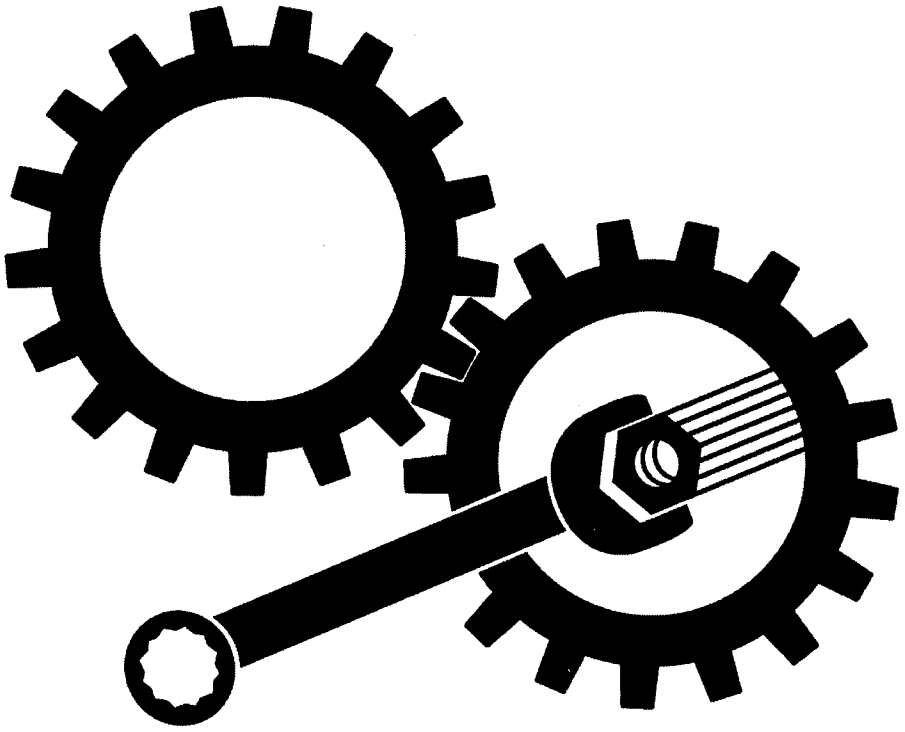

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TABLE OF CONTENTS

Section 1 - Introduction 1-3
1.1 The Manual 1-3
1.2 Service and Replacement Parts 1-3
1.3 Product Registration 1-3
1.4 Unauthorized Replacement Parts 1-3
1.5 Disclaimer 1-3
1.6 Technical Service Communications 1-3

Section 2 - Safety 2-4
2.1 Safety Alerts 2-4
2.2 Signal Words 2-4
2.3 Notations 2-4
2.4 Practices and Laws 2-4
2.5 Required Operator Training 2-4
2.6 Preparation 2-4
2.7 Service Position 2-4
2.8 Cleaning and Storage 2-4
2.9 Safety Rules 2-5

Section 3 - Specifications 3-7

Section 4 - General Maintenance & Adjustments 4-11
4.1 Controls and Features 4-11
4.2 Service Positions 4-12
4.3 Filling The Fuel Tank 4-12
4.4 Fuel Shut-Off Valve 4-13
4.5 General Lubrication 4-13
4.6 Auger Gearcase 4-14
4.7 Engine 4-14
4.8 Attachment Drive Belt 4-15
4.9 Traction Drive Belt 4-15
4.10 Shear Bolts 4-16
4.11 Tire Pressure 4-16
4.12 Adjustments 4-16

Section 5 - HandleBars & Controls 5-20
5.1 Lower Handlebar 5-20
5.2 Attachment Clutch Handle 5-20
5.3 Wheel Drive Clutch Lever & Traction Cable 5-20

Section 6 - Engine 6-21
6.1 Engine Troubleshooting 6-21
6.2 Removing the Engine 6-22
6.3 Installing The Engine 6-22

Section 7 - Reduction Drive 7-23
7.1 Wheels and Axle 7-23
7.2 Sprocket and Chain - 824 Models Only . . 7-23

Section 8 - Friction Wheel Drive 8-24
8.1 Friction Wheel 8-24
8.2 Friction Wheel Carrier 8-25
8.3 Drive Plate 8-25
8.4 Drive Plate Hex Shaft 8-25

Section 9 - Auger/Impeller 9-26
9.1 Auger/Impeller Removal 9-26
9.2 Scraper Blade 9-26
9.3 Shear Bolts 9-26
9.4 Discharge Chute 9-27
9.5 Runners 9-28

Section 10 - Gear Case 10-29
10.1 Aluminum Gear Case 10-29

SECTION 1 - INTRODUCTION

1.1 THE MANUAL

It is the purpose of this manual to provide complete instructions for service, maintenance, disassembly, repair, and installation of the mechanical components for the 932 Snow-Thro.

Dealer trained service personnel should use this manual as a supplement to and reminder of the training sessions conducted by the company.

Read all information for servicing a part of system before repair work is started to avoid needless disassembly.

Operation

Before operation of the unit, carefully and completely read manuals supplied with the unit. The contents will provide you with an understanding of safety instructions and controls during normal operation and maintenance.

Safety Messages

For your safety and the safety of others always read, understand, and follow all DANGER, WARNING, and CAUTION messages found in manuals and on safety decals.

Directional Reference

All reference to left, right, front, or rear are given from the operator in the operator position and facing the direction of forward travel.

1.2 SERVICE AND REPLACEMENT PARTS

When ordering publications, replacement parts, or making service inquiries, know the Model and Serial numbers of your unit and engine.

Numbers are located on the product registration form in the unit literature package. They are printed on a serial number label, located on the frame of your unit.

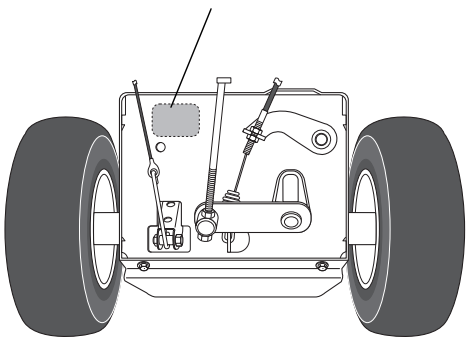


Figure 1

1.3 PRODUCT REGISTRATION

A warranty registration card must be filled out, signed, and returned at the time of purchase. This card activates the warranty. Claims meeting requirements during limited warranty period will be honored.

1.4 UNAUTHORIZED REPLACEMENT PARTS

Use only Ariens replacement parts. The replacement of any part on this vehicle with anything other than an Ariens authorized replacement part may adversely affect the performance, durability, or safety of this unit and may void the warranty. Ariens disclaims liability for any claims or damages, whether warranty, property damage, personal injury, or death arising out of the use of unauthorized replacement parts.

1.5 DISCLAIMER

Ariens reserves the right to discontinue, make changes to, and add improvements upon its products at any time without public notice or obligation. The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may be optional. Some illustrations may not be applicable to your unit.

1.6 TECHNICAL SERVICE COMMUNICATIONS

Ariens Technical Service communicates information to the field using Service Letters, Service Bulletins, Product Notices, and Campaigns. Each communication signifies a type of information and priority. The dealer is responsible to carry out the directive provided in the communication. The types of communication are:

Service Letter - General technical information for the dealer. Technical information on how to service the product and product improvements.

Service Bulletin - Notification to update products to resolve certain issues or a notification of a policy change.

Product Notices - Notification of limited product located in a certain region. This is a limited distribution to only those who received the product involved.

Campaigns - Notification of a safety related issue. All product must be updated and are tracked by the factory until all units are corrected.

SECTION 2 - SAFETY

2.1 SAFETY ALERTS

Look for these symbols to point out important safety precautions. They mean:

Attention!

Personal Safety Is Involved!

Become Alert!

Obey The Message!

2.2 SIGNAL WORDS

The safety alert symbol is used in decals on the unit and with proper operation procedures in this manual. They alert you to the existence and relative degree of hazards.

Understand the safety message. It contains important information about personal safety on or near the unit.

DANGER: IMMINENTLY HAZARDOUS SITUATION! If not avoided, WILL RESULT in death or serious injury.

WARNING: POTENTIALLY HAZARDOUS SITUATION! If not avoided, COULD RESULT in death or serious injury.

CAUTION: POTENTIALLY HAZARDOUS SITUATION! If not avoided, MAY RESULT in minor or moderate injury. It may also be used to alert against unsafe practices.

2.3 NOTATIONS

NOTE: General reference information for proper operation and maintenance practices.

IMPORTANT: Specific procedures or information required to prevent damage to unit or attachment.

2.4 PRACTICES AND LAWS

Practice usual and customary safe working precautions, for the benefit of yourself and others. Understand and follow all safety messages. Be alert to unsafe conditions and the possibility of minor, moderate, or serious injury or death. Learn applicable rules and laws in your area.

2.5 REQUIRED OPERATOR TRAINING

Original purchaser of this unit was instructed by the seller on safe and proper operation. If unit is to be used by someone other than original purchaser; loaned, rented or sold, ALWAYS provide this manual and any needed safety training before operation.

2.6 PREPARATION

Before starting any removal of parts, proper preparation is very important for efficient work. A clean work area at the start of each job will allow you to perform service repairs easily and quickly.

To reduce the incidence of misplaced tools or parts, place removed components with all attaching hardware in the disassembly order on a clean work surface. Organization is a key part of proper reassembly.

Tools, instruments, and parts needed for the job should be gathered before work is started. Interrupting a job to locate tools or parts is a needless delay. A list of required special tools has been included in this manual.

2.7 SERVICE POSITION

WARNING: ALWAYS block wheels and know that jack stands or blocks used are stable, strong, secure and will hold the weight of the unit during maintenance.

To ensure the unit is positioned in the proper service position place unit on a flat level surface. ALWAYS stop engine. Assure unit is secure and will not tip over. Strap and clamp onto lift if used.

See *Service Position* in General Maintenance for specific instructions.

2.8 CLEANING AND STORAGE

WARNING: AVOID SHARP EDGES which can cut. Movement of parts can cut off fingers or a hand. Wear gloves, and use extreme caution when servicing.

IMPORTANT: Never spray unit with water or store unit outdoors to help prevent sealed bearing rust or corrosion. Water can seep into sealed bearings and reduce component life. Bearings are sealed against dirt and debris only.

A unit that is excessively dirty should be cleaned before work starts. Cleaning will occasionally uncover trouble sources. Dirt and abrasive dust reduce the efficient work life of parts and can lead to costly replacement.

When taking unit out of extended storage:

1. Check for any damage or loose parts. Repair, replace, or tighten hardware before operation.
2. If a preservative fluid was used in fuel tank, drain and discard. Fill fuel tank with fresh new fuel.

2.9 SAFETY RULES

Walk Around Inspection

Complete a walk around inspection of unit and work area to understand:

- Work area.
- Your unit.
- All safety decals.

Work Area

ALWAYS check overhead and side clearances carefully before operation. ALWAYS be aware of traffic when operating along streets or curbs.

ALWAYS keep hands and feet within the limits of the unit.

Keep children, people, and animals away. Keep children out of work area and under watchful care of a responsible adult.

Keep area of operation clear of all toys, pets, and debris. Stay alert for hidden hazards.

DO NOT run engine in an enclosed area. Always provide good ventilation.

Unit

ALWAYS keep protective structures, guards, and panels in good repair, in place and securely fastened. NEVER modify or remove safety devices.

Operation

Understand:

- How to operate all controls
- The functions of all controls
- How to STOP in an Emergency
- Speed ranges

Before starting engine, disengage auxiliary power.

Always back up slowly. Always look down and behind before and while backing.

Never leave a running unit unattended. ALWAYS shut off auxiliary power, lower throttle setting, and stop engine before leaving unit. ALWAYS remove key to prevent unauthorized use.

ALWAYS operate unit in good visibility and light.

Fuel is highly flammable and its vapors can explode.
Use ONLY approved RED fuel containers.
NO Smoking!
NO Sparks!
NO Flames!
Allow engine to cool before servicing.
NEVER fill fuel tank when engine is running, hot, or unit is indoors.

Abnormal Vibrations are a warning of trouble. Striking a foreign object can damage unit. Stop unit and engine. Wait for all moving parts to stop. Remove wire from spark plug. Inspect unit and make any necessary repairs before restart.

Hazardous Slopes

DO NOT operate on steep slopes. Avoid operating on slopes. When you must operate on a slope, travel up and down the slope. Never operate cross a slope. Never operate on a slope greater than 10 degrees.

Child Safety

NEVER allow children to operate or play on or near unit. Be alert and shut off unit if children enter area.

Personal Safety

Read and obey all warning, caution, and instructions on the unit and in provided manuals.

- Only trained adults may operate unit.
- Training includes actual operation.
- Clearly understand instructions.
- Be alert! Conditions can change.

NEVER operate unit after or during the use of medication, drugs or alcohol. Safe operation requires your complete and unimpaired attention at all times.

NEVER allow anyone to operate the unit when their alertness or coordination is impaired.

DO NOT operate unit without wearing adequate outer garments. Wear adequate safety gear and protective gloves. Wear proper footwear to improve footing on slippery surfaces.

Protect eyes, face, and head from objects that may be thrown from unit. Wear appropriate hearing protection.

Avoid Sharp Edges. Sharp edges can cut. Moving parts can cut or amputate fingers or a hand. Wear gloves to service unit when handling sharp edges.

ALWAYS keep hands away from any pinch points.

ALWAYS keep hands and feet away from all moving parts during operation. Moving parts can cut off body parts.

DO NOT touch unit parts which might be hot from operation. Allow parts to cool before attempting to maintain, adjust, or service.

Controls

Come to a complete stop before reversing.

Never jerk the control levers. Always use a steady even action to achieve smooth control.

Always be aware of obstructions that may cause injury to operator or damage to the unit.

Keep alert with eyes fixed in direction of travel.

Maintenance

ALWAYS maintain unit in safe operating condition. Damaged or worn out muffler can cause fire or explosion.

Check the conditions of the unit at the end of each day and repair any damage or defects.

Keep nuts and bolts tight and keep equipment in safe operating conditions.

Before maintenance, adjustments, or service (except where specifically recommended), shut off engine.

Allow hot parts to cool.

Keep unit free of dirt, stones, and other debris. Clean up oil or fuel spills.

Storage

DO NOT store unit inside a building with fuel in the fuel tank where any ignition sources are present. Allow unit to cool completely.

ALWAYS clean unit before extended storage. See Engine Manual for proper storage.

Battery

Avoid Electric Shock. DO NOT reverse battery connections.

Explosive Gases! Poisonous battery fluid contains sulfuric acid and its contact with skin, eyes, or clothing can cause severe burns.

No flames. No sparks. No smoking near battery.

Always wear safety glasses and protective gear near battery.

DO NOT TIP battery beyond a 45^{o} angle in any direction.

ALWAYS KEEP BATTERIES OUT OF REACH of children.

Transport

Use extra care when loading or unloading unit onto trailer or truck. Secure unit chassis to transport vehicle. NEVER secure from rods or linkages that could be damaged.

SECTION 3 - SPECIFICATIONS

Model Number	932025	932026	932027	932029	932030
Description	**ST 5+2**	**ST 524**	**ST 724**	**ST 824**	**ST 5+2**
Engine	HSK-50	HSK-50	HSK-70	HSK-80	HSK-50
Manufacturer	Tecumseh	Tecumseh	Tecumseh	Tecumseh	Tecumseh
Fuel	Unleaded	Unleaded	Unleaded	Unleaded	Unleaded
Fuel Tank Capacity - qt (L)	2 (1.9)	2 (1.9)	4 (3.8)	4 (3.8)	2 (1.9)
Idle RPM	1800	1800	1800	1800	1800
Governed RPM	3600	3600	3600	3600	3600
Crank Case Capacity - oz (L)	21 (.62)	21 (.62)	21 (.62)	21 (.62)	21 (.62)
Engine Oil Type	5W30	5W30	5W30 Winter 30W Summer	5W30 Winter 30W Summer	5W30
Spark Plug Gap-in (cm)/Type	0.030 (0.076) Champion	0.030 (0.076) Champion	0.030 (0.076) Champion	0.030 (0.076) Champion	0.030 (0.076) Champion
Drive/Differential	N/A	Disc-O-Matic/ Yes	Disc-O-Matic/ Yes	Disc-O-Matic/ Yes	N/A
No. of Speeds - Forward	N/A	5	5	5	N/A
- Reverse	N/A	1	2	2	N/A
Tire Size	16" x 1.75"	12"/4:10/3.5-6	12"/4:10/3.5-6	12"/4:10/3.5-6	16" x 1.75"
Tire Pressure - PSI	N/A	20	20	20	N/A
Discharge Distance - ft (m)	3-25 (.9-7.7)	3-30 (.9-9.2)	3-30 (.9-9.2)	3-30 (.9-9.2)	3-25 (.9-7.7)
Chute Turning Radius	220^{o}	220^{o}	220^{o}	220^{o}	220^{o}
Adjustable Skid Shoes	N/A	Yes	Yes	Yes	N/A
Auger Size - in (cm)	11 (28)	11 (28)	11 (28)	11 (28)	11 (28)
Auger RPM	100	100	100	100	100
Auger Clutched	Belt	Belt	Belt	Belt	Belt
Impeller Size - in (cm)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)
Impeller RPM	1000	1000	1000	1000	1000
Gear Case Lube	L-2	L-2	L-2	L-2	L-2
Blower Housing Height - in (cm)	16 (41)	16 (41)	16 (41)	16 (41)	16 (41)
Blower Housing Width - in (cm)	20 (51)	24 (61)	24 (61)	24 (61)	20 (51)
Front Weight Kit	N/A	N/A	N/A	52407400	N/A
Slicer Bar Kit	71099700	71099700	71099700	71099700	71099700
Headlight Kit	N/A	72407400 Below Ser. #6000	72407400 Below Ser. #8000	N/A	N/A
Electric Starter Kit	72200600	72200600	72403500	72403600	72200600
Rotary Broom Attachment	N/A	832007	832007	832007	N/A
Tiller/Lawn Edger Attachment	832008	832008	832005/832008	N/A	832008

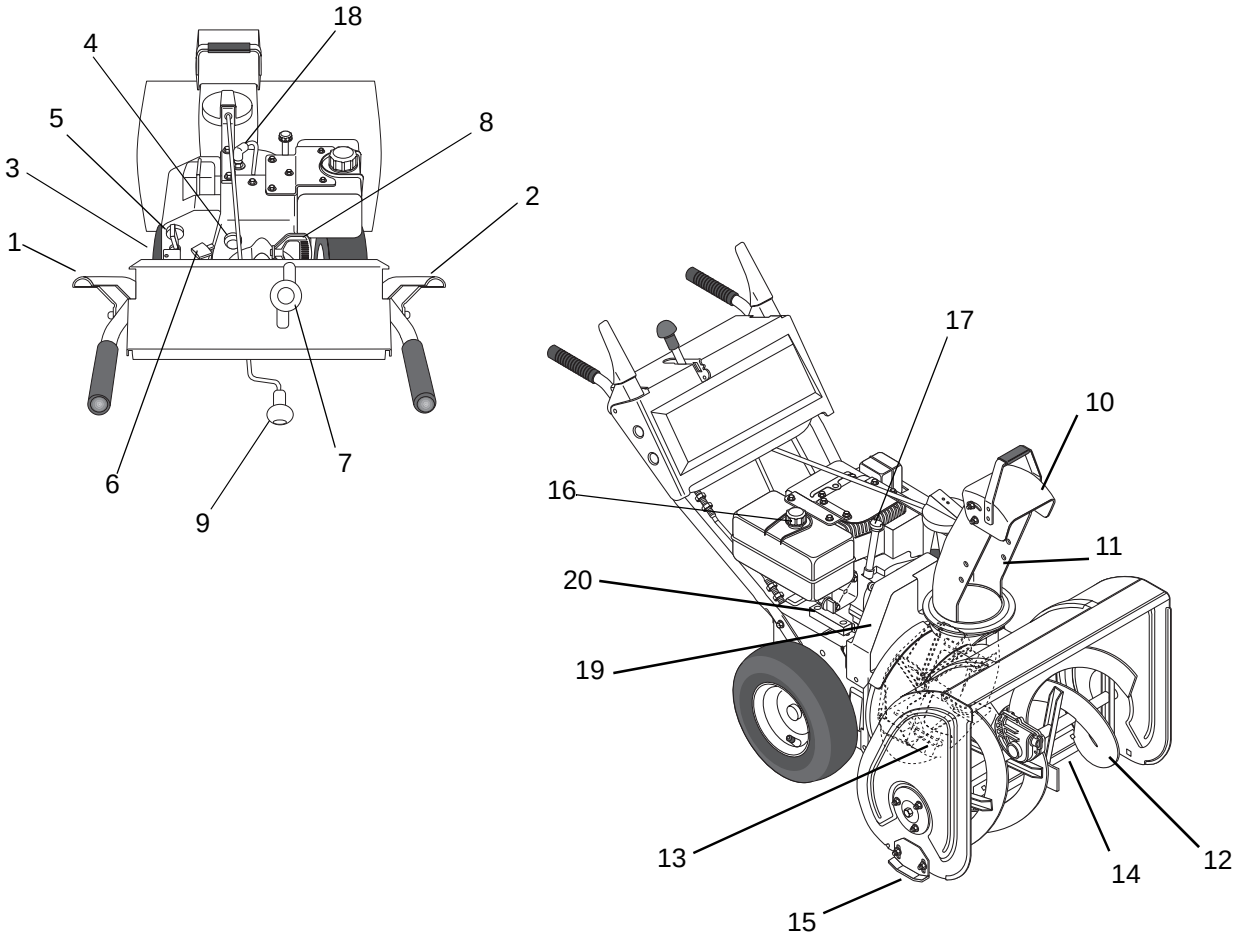
Model Number	932031	932032	932033	932300	932301
Description	**ST 524**	**ST 724**	**ST 724**	**ST 524 CE**	**ST 524 s**
Engine	HSK-50	HSK-70	HSK-70	HSK-50	HSK-50
Manufacturer	Tecumseh	Tecumseh	Tecumseh	Tecumseh	Tecumseh
Fuel	Unleaded	Unleaded	Unleaded	Unleaded	Unleaded
Fuel Tank Capacity - qt (L)	2 (1.9)	4 (3.8)	4 (3.8)	2 (1.9)	2 (1.9)
Idle RPM	1800	1800	1800	1800	1800
Governed RPM	3600	3600	3600	3600	3600
Crank Case Capacity - oz (L)	21 (.62)	21 (.62)	21 (.62)	21 (.62)	21 (.62)
Engine Oil Type	5W30	5W30 Winter 30W Summer	5W30 Winter 30W Summer	5W30	5W30
Spark Plug Gap-in (cm)/Type	0.030 (0.076) Champion	0.030 (0.076) Champion	0.030 (0.076) Champion	0.030 (0.076) Champion	0.030 (0.076) Champion
Drive/Differential	Disc-O-Matic/ Yes	Disc-O-Matic/ Yes	Disc-O-Matic/ Yes	Disc-O-Matic/ Yes	Disc-O-Matic/ Yes
No. of Speeds - Forward **- Reverse**	5 1	5 2	5 2	5 1	5 2
Tire Size	12"/4:10/3.5-6	12"/4:10/3.5-6	12"/4:10/3.5-6	12"/4:10/3.5-6	12"/4:10/3.5-6
Tire Pressure - PSI	20	20	20	20	20
Discharge Distance - ft (m)	3-30 (.9-9.2)	3-30 (.9-9.2)	3-30 (.9-9.2)	3-30 (.9-9.2)	3-30 (.9-9.2)
Chute Turning Radius	220^{o}	220^{o}	220^{o}	220^{o}	220^{o}
Adjustable Skid Shoes	Yes	Yes	Yes	Yes	Yes
Auger Size - in (cm)	11 (28)	11 (28)	11 (28)	11 (28)	11 (28)
Auger RPM	100	100	100	100	100
Auger Clutched	Belt	Belt	Belt	Belt	Belt
Impeller Size - in (cm)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)
Impeller RPM	1000	1000	1000	1000	1000
Gear Case Lube	L-2	L-2	L-2	L-2	L-2
Blower Housing Height - in (cm)	16 (41)	16 (41)	16 (41)	16 (41)	16 (41)
Blower Housing Width - in (cm)	24 (61)	24 (61)	24 (61)	24 (61)	24 (61)
Front Weight Kit	N/A	N/A	N/A	N/A	N/A
Slicer Bar Kit	71099700	71099700	71099700	71099700	71099700
Headlight Kit	N/A	N/A	N/A	N/A	N/A
Electric Starter Kit	72200600	72403500	72200600	N/A	N/A
Rotary Broom Attachment	N/A	N/A	N/A	N/A	N/A
Tiller/Lawn Edger Attachment	N/A	N/A	N/A	N/A	N/A

Model Number	932034	932302	932303	932304	932305
Description	**ST 724**	**ST 524**	**ST 724**	**ST 824**	**ST 524**
Engine	HSK-70	HSK-50	HSK-70	HSK-80	HSK-50
Manufacturer	Tecumseh	Tecumseh	Tecumseh	Tecumseh	Tecumseh
Fuel	Unleaded	Unleaded	Unleaded	Unleaded	Unleaded
Fuel Tank Capacity - qt (L)	4 (3.8)	2 (1.9)	4 (3.8)	4 (3.8)	2 (1.9)
Idle RPM	1800	1800	1800	1800	1800
Governed RPM	3600	3600	3600	3600	3600
Crank Case Capacity - oz (L)	21 (.62)	21 (.62)	21 (.62)	21 (.62)	21 (.62)
Engine Oil Type	5W30 Winter 30W Summer	5W30	5W30 Winter 30W Summer	5W30 Winter 30W Summer	5W30
Spark Plug Gap-in (cm)/Type	0.030 (0.076) Champion	0.030 (0.076) Champion	0.030 (0.076) Champion	0.030 (0.076) Champion	0.030 (0.076) Champion
Drive/Differential	Disc-O-Matic/ Yes	Disc-O-Matic/ Yes	Disc-O-Matic/ Yes	Disc-O-Matic/ Yes	Disc-O-Matic/ Yes
No. of Speeds - Forward **- Reverse**	5 2	5 1	5 2	5 2	5 1
Tire Size	12"/4:10/3.5-6	12"/4:10/3.5-6	12"/4:10/3.5-6	12"/4:10/3.5-6	12"/4:10/3.5-6
Tire Pressure - PSI	20	20	20	20	20
Discharge Distance - ft (m)	3-30 (.9-9.2)	3-30 (.9-9.2)	3-30 (.9-9.2)	3-30 (.9-9.2)	3-30 (.9-9.2)
Chute Turning Radius	220^{o}	220^{o}	220^{o}	220^{o}	220^{o}
Adjustable Skid Shoes	Yes	Yes	Yes	Yes	Yes
Auger Size - in (cm)	11 (28)	11 (28)	11 (28)	11 (28)	11 (28)
Auger RPM	100	100	100	100	100
Auger Clutched	Belt	Belt	Belt	Belt	Belt
Impeller Size - in (cm)	10 (25)	10 (25)	10 (25)	10 (25)	10 (25)
Impeller RPM	1000	1000	1000	1000	1000
Gear Case Lube	L-2	L-2	L-2	L-2	L-2
Blower Housing Height - in (cm)	16 (41)	16 (41)	16 (41)	16 (41)	16 (41)
Blower Housing Width - in (cm)	24 (61)	24 (61)	24 (61)	24 (61)	24 (61)
Front Weight Kit	52407400	N/A	52407400	524007400	N/A
Slicer Bar Kit	71099700	71099700	71099700	71099700	71099700
Headlight Kit	N/A	N/A	N/A	N/A	N/A
Electric Starter Kit	N/A	N/A	N/A	N/A	73202500
Rotary Broom Attachment	N/A	N/A	N/A	N/A	N/A
Tiller/Lawn Edger Attachment	N/A	N/A	N/A	N/A	N/A

Model Number	932306	932307			
Description	**ST 724**	**ST 724**			
Engine	HSK-70	HSK-70			
Manufacturer	Tecumseh	Tecumseh			
Fuel	Unleaded	Unleaded			
Fuel Tank Capacity - qt (L)	4 (3.8)	4 (3.8)			
Idle RPM	1800	1800			
Governed RPM	3600	3600			
Crank Case Capacity - oz (L)	21 (.62)	21 (.62)			
Engine Oil Type	5W30 Winter 30W Summer	5W30 Winter 30W Summer			
Spark Plug Gap-in (cm)/Type	0.030 (0.076) Champion	0.030 (0.076) Champion			
Drive/Differential	Disc-O-Matic/ Yes	Disc-O-Matic/ Yes			
No. of Speeds - Forward **- Reverse**	5 2	5 2			
Tire Size	12"/4:10/3.5-6	12"/4:10/3.5-6			
Tire Pressure - PSI	20	20			
Discharge Distance - ft (m)	3-30 (.9-9.2)	3-30 (.9-9.2)			
Chute Turning Radius	220^{o}	220^{o}			
Adjustable Skid Shoes	Yes	Yes			
Auger Size - in (cm)	11 (28)	11 (28)			
Auger RPM	100	100			
Auger Clutched	Belt	Belt			
Impeller Size - in (cm)	10 (25)	10 (25)			
Impeller RPM	1000	1000			
Gear Case Lube	L-2	L-2			
Blower Housing Height - in (cm)	16 (41)	16 (41)			
Blower Housing Width - in (cm)	24 (61)	24 (61)			
Front Weight Kit	52407400	52407400			
Slicer Bar Kit	71099700	71099700			
Headlight Kit	N/A	N/A			
Electric Starter Kit	73202500	72403500			
Rotary Broom Attachment	N/A	N/A			
Tiller/Lawn Edger Attachment	N/A	N/A			

SECTION 4 - GENERAL MAINTENANCE & ADJUSTMENTS

4.1 CONTROLS AND FEATURES



1. Traction Drive Lever
2. Attachment Clutch Lever
3. Engine Ignition and Key
4. Primer Bulb
5. Choke
6. Throttle
7. Speed Selector
8. Recoil Starter Handle
9. Chute Crank
10. Discharge Chute Deflector
11. Discharge Chute
12. Auger
13. Impeller
14. Scraper Blade
15. Runner(s)
16. Gas Tank and Cap
17. Oil Fill and Dipstick
18. Spark Plug and Wire
19. Belt Guard Cover
20. Fuel Shut Off Valve

Figure 1

OS1380
OS0500

4.2 SERVICE POSITIONS

Ariens Dealers will provide any service or adjustments which may be required to keep your unit operating at peak efficiency. Should engine service be required, contact an Ariens dealer or an authorized engine manufacturer's service center.

WARNING: ACCIDENTAL ENGINE START UP can cause death or serious injury.
ALWAYS stop engine, remove key, wait for moving parts to stop and remove wire from spark plug before adjusting or servicing.
HOT SURFACES can result in death or serious injury.
DO NOT touch parts which are hot from operation.
ALWAYS allow parts to cool.

CAUTION: FUEL SPILLS may result in minor or moderate injury and/or damage to the unit. Before unit is tipped up onto housing, remove enough fuel so that no spillage will occur.

Belt Service Position

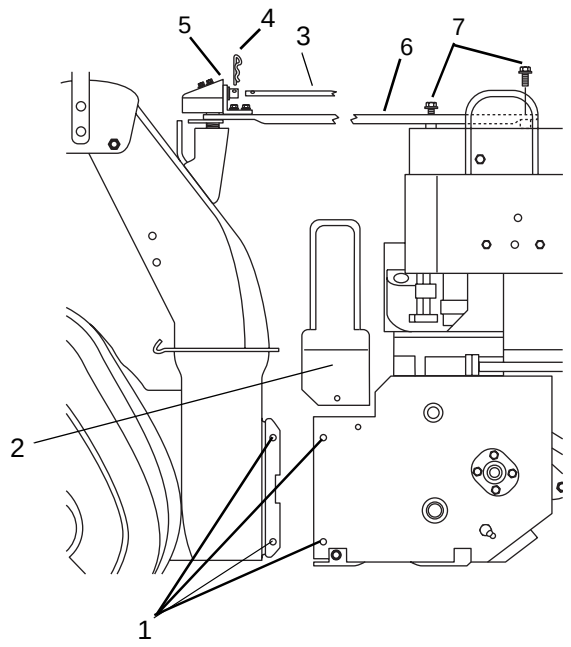
To ensure the unit is positioned in the proper service position:

1. Draw gas from gas tank to prevent spilling.
2. Remove the two screws from the belt cover and remove the cover, Figure 2.
3. Extract the pin for the chute crank at the connection nearest the chute.
4. Remove cap screws holding chute strap to engine and lift discharge chute off housing.
5. Loosen the belt finger guards at the pulley and pivot away from the belts.
6. Remove the attachment drive belt from the engine pulley.
7. Tip the two halves apart exposing the belts and pulleys.

On-End Service Position

To ensure the unit is positioned in the proper service position:

1. Drain gas from gas tank to prevent spilling.
2. Tip the unit up on the front of the blower housing.
3. Remove the bottom cover plate by unscrewing the four bolts.



1. Housing Bolt Holes
2. Belt Cover
3. Chute Crank
4. Hair Pin
5. Pinion and Gear
6. Chute Strap
7. Cap Screws

Figure 2

OS0792

4.3 FILLING THE FUEL TANK

EXPLOSIVE VAPORS and FLAMMABLE FUEL can result in serious injury or death. Handle fuel with care. ALWAYS use an approved fuel container.

No Smoking!

No Lighted Materials!

No Open Flame!

Allow engine to cool.

Use caution with fuel. Fuel is very flammable. Keep fuel in a clean and tight container. Keep fuel away from fire or heat. Never put fuel in the fuel tank while the engine is running or hot. Clean up any spilled fuel before starting the engine.

Add fuel to the tank as needed. See your Engine Manual for correct type and grade of fuel.

To add fuel to the fuel tank:

1. Refuel the unit only in a well ventilated, open area.
2. Stop the engine and allow to cool.
3. Clean the fuel cap and the area around the fuel cap to prevent dirt from entering the fuel tank. Remove the cap from the fuel tank.
4. Fill the fuel tank to within 1/2' (3.1 cm) below bottom of filler neck with unleaded gasoline. Tank capacity is 1 gallon (3.8 liters).
5. Install the cap on the fuel tank and tighten.
6. Clean up any spilled fuel before starting the engine.

WARNING: POTENTIAL HAZARDOUS! Fuel is extremely flammable and highly explosive. Personal injury and property damage may result if not handled properly.

- Fill the fuel tank outdoors in an open area. Do not fill when the engine is hot. Wipe up any fuel spills.
- Never fill the fuel tank completely full. Empty space in tank allows fuel to expand.
- Never smoke when handling fuel. Stay away from open flames. Fuel fumes can be ignited by sparks.

4.4 FUEL SHUT-OFF VALVE

IMPORTANT: The unit is equipped with a gravity feed type of fuel system. If the fuel shut-off valve is not in the closed "Off" position, gasoline can leak out of the carburetor while the unit is being transported.

IMPORTANT: The unit engine fuel shut-off valve has two positions:

1. Closed "Off"
2. Open "On"

ALWAYS close or turn the fuel shut-off valve to the "Off" position for servicing, transporting or storing the unit.

The unit must have the fuel shut-off valve in the open "On" position for proper fuel delivery to the engine during normal operation (Figure 1).

Check the fuel shut-off valve frequently to assure it is in the proper position for operation or service.

4.5 GENERAL LUBRICATION

HOT SURFACES can cause death or serious injury. DO NOT touch parts which are hot from operation. ALWAYS allow parts to cool.

IMPORTANT: Wipe each fitting clean before and after lubrication.

IMPORTANT: DO NOT allow grease or oil to get on friction wheel, drive disc or belts.

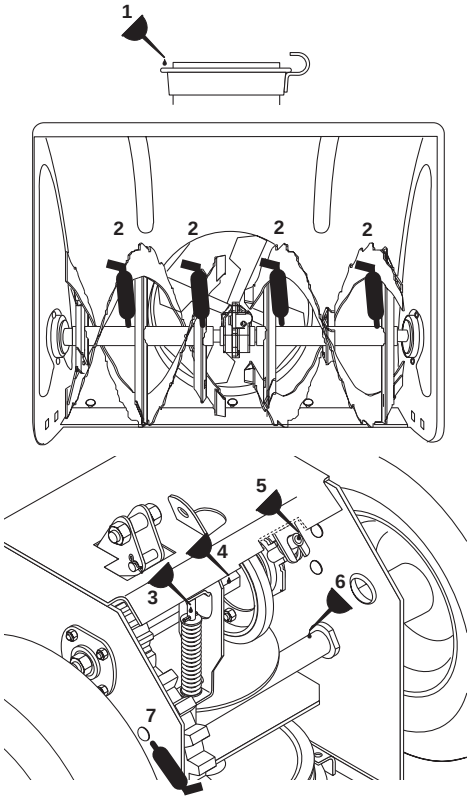
Apply Sten Mix Hi-Temp Grease or equivalent to the lube fittings. Order P/N: 00036800 - three pack of 3 oz. cartridges or P/N 00036800 - ten pack of 14 oz. cartridges.

When using Sten Mix Hi-Temp Grease for the first time, all components should be thoroughly cleaned prior to lubricating.

Apply oil at all pivot points and pin connections, see Figure 3.

Unit should be lubricated at beginning of season or every 25 operating hours.

NOTE: To grease auger shaft, remove shear bolt nuts, and shear bolts. Turn auger on shaft while applying grease at zerk fittings. Replace shear bolt per instructions in *Shear Bolt Replacement*.



1. Discharge Chute Base
2. Auger and Shaft
3. Drive Wheel Spring Package
4. Hex Shaft
5. Bearing Flange Pin
6. Bushing
7. Pinion shaft (8 H.P. models)

Figure 3

OS1371

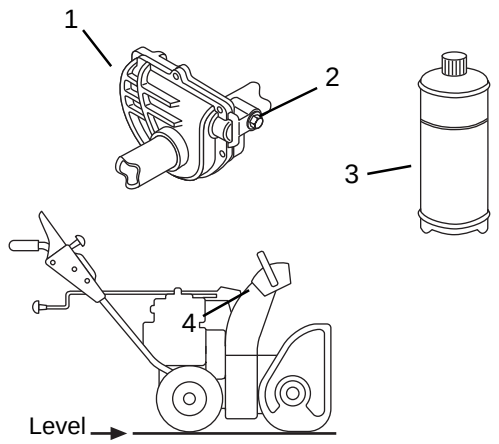
4.6 AUGER GEARCASE

IMPORTANT: Too much lubricant may cause excessive leakage. Too little lubricant will cause gear and/or bearing damage. Proper oil level must be maintained for operation.

Gear cases are filled to the correct level at the factory. Unless there is evidence of leakage, no additional lubricant should be required. Check for evidence of leakage every 25 hours or operation.

To ensure adequate lubricant level:

1. Remove filler plug. Lubricant must be at least up to bottom of lubricant filler hole with unit resting on a level-surface.
2. Add lubricant, if required, allow oil to drain to level of plug and replace plug (Figure 4).
3. Use only Ariens special gear lubricant L-2 (P/N 00008000).



1. Auger Gearcase-Aluminum
2. Oil Fill and Drain Level Plug
3. Ariens Special L-2 Gear Lube

Figure 4

OS1360

4.7 ENGINE

Cooling

The engine is air cooled. Air must circulate freely around engine from Air Intake to cooling fins on cylinder head and block, to prevent overheating.

Each year (more often if conditions require) remove cooling shrouds and clean cooling fins. Clean external surfaces of engine of dust, dirt, and oil deposits which can contribute to improper cooling. See Engine Manual.

IMPORTANT: DO NOT operate engine with cooling shrouds removed. Engine overheating and damage will result.

Engine Oil Check

The engine crankcase oil should be checked daily or every 5 hours of operation. Oil level MUST be maintained in safe operating range on dipstick at all times or engine damage will result (See Engine Manual).

To check, park unit on a flat, level surface and:

1. Clean all debris away from oil cap.
2. Remove oil cap and dipstick. Wipe oil of dipstick with a clean cloth. Replace dipstick until cap bottoms on tube. Remove dipstick again and observe oil level. Oil should be at the Full (F) mark.
3. If low, add oil and bring up to the Full (F) mark.

IMPORTANT: DO NOT over fill. Oil level must not exceed Full (F) mark.

Engine Oil Type	Ambient Temperature
SAE 5W30	Below 40^{o} F (4^{o} C)
SAE 30	Above 40^{o} F (4^{o} C)

4. Replace dipstick and cap. Clean up any spilled oil.

Engine Oil Change

Change oil after first 5 hours of operation, thereafter change oil every 25 hours (more often if required).

NOTE: Run engine just prior to changing oil. Warm oil will flow more freely and carry away more contamination.

1. Drain crankcase by removing oil drain plug (see Engine Manual).
2. When oil has drained replace plug and refill engine crankcase with new oil of proper grade.
3. Recheck oil level with dipstick.

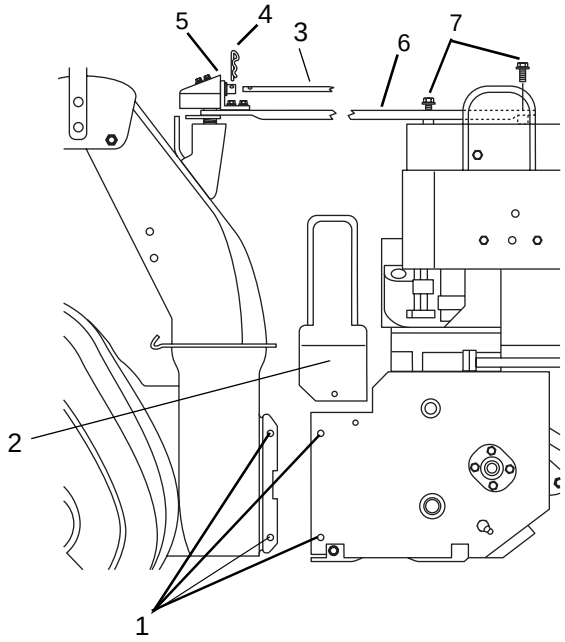
4.8 ATTACHMENT DRIVE BELT

WARNING: IMPROPER ADJUSTMENT could result in death or serious injury. IMPELLER BRAKE MUST DISENGAGE when clutch is engaged. Brake must be at least 1/16" (1.6 mm) to 1/8" (3.2 mm) minimum from belt when disengaged. BELT FINGERS MUST BE between 1/16 to 1/8" from belt with attachment clutch engaged or belt grabbing may occur causing impeller to rotate while attachment clutch is disengaged.

WARNING: ROTATING PARTS can cut or amputate body parts. Keep hands and feet away. Loose clothing, long hair or scarves can get caught in rotating parts and cause death or serious injury.

To Replace the Attachment Drive Belt:

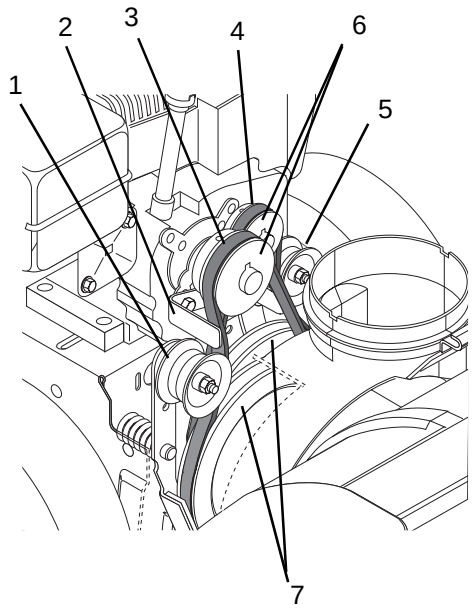
1. Shut off engine and allow to cool completely.
2. Place unit in Belt Service Position.



1. Housing Bolt Holes
2. Belt Cover
3. Chute Crank
4. Hair Pin
5. Pinion and Gear
6. Chute Strap
7. Cap Screws

Figure 5

OS0792



1. Attachment Belt Idler
2. Belt Finger
3. Attachment Drive Belt
4. Traction Drive Belt
5. Traction Belt Idler
6. Engine Pulleys
7. Sheaves

Figure 6

OS0461

3. Support handlebar.
4. Loosen lower cap screws holding attachment to frame (one on each side).
5. Remove upper cap screws.
6. Separate housing from unit. Lower handlebars on floor.
7. Remove attachment drive belt from sheave (hold brake away from belt).
8. Place new belt onto sheave and while holding brake out of way, tip unit together.
9. Replace attachment drive belt in reverse order making sure sheaves align. If alignment is necessary, loosen attachment sheave set screws, reposition sheave and retighten set screws.

4.9 TRACTION DRIVE BELT

WARNING: ROTATING PARTS can cut or amputate body parts. Keep hands and feet away. Loose clothing, long hair or scarves can get caught in rotating parts and cause death or serious injury.

To Replace the Traction Drive Belt

1. Place unit in the Belt Service Position.
2. Pull idler away from belt (Figure 6) and remove belt from idler pulley, engine and drive pulley (it may be necessary to turn engine pulley using rewind starter).
3. Rotate belt fingers out and away from belt and pulley by removing one cap screw and loosening the other.

IMPORTANT: Use care when rotating the belt fingers to prevent deformation of parts.

NOTE: To gain clearance engage traction clutch and if necessary pull back attachment idler arm clevis pin.

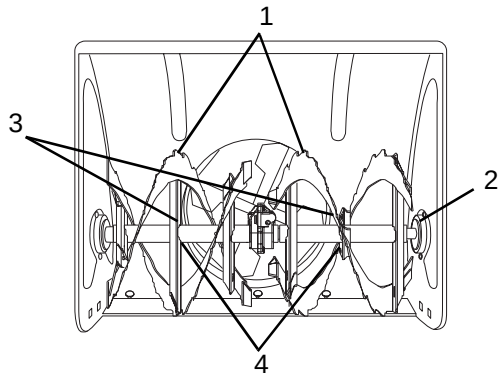
4. Replace traction drive belt and belt fingers in reverse order making sure pulleys align. If alignment is necessary, loosen engine pulley set screws, reposition pulley and retighten set screws. Check alignment of attachment driven pulley and align if necessary.
5. Check and adjust clutch.

4.10 SHEAR BOLTS

WARNING: ROTATING PARTS can cut or amputate body parts. Keep hands and feet away. Loose clothing, long hair or scarves can get caught in rotating parts and cause death or serious injury.

IMPORTANT: Use only Ariens Shear Bolts for replacement. Use of any other type of shear bolt may result in severe damage to the unit.

Occasionally a foreign object may enter the auger/ impeller housing and jam the auger, breaking shear bolts which secure the auger to the shaft (Figure 7). This allows auger to turn freely on the shaft preventing damage to the gear drive.



1. Auger
2. Roll Pin
3. Shear Bolt(s)
4. Nut(s)

Figure 7 OS0401

For Replacement:

1. Slide auger outward against roll pin and align hole in shaft with hole in auger. The holes in the shaft for the roll pins and shear bolts line up.
2. Drive shear bolt through hole (if shear bolt was broken this will drive the remaining part from shaft).
3. Secure shear bolt with nut.
4. The shear bolts should not be overtightened to collapse the auger center tube to the auger drive shaft.

4.11 TIRE PRESSURE

Maintain the unit tire pressure at a maximum of 20 PSI (138 kPa).

4.12 ADJUSTMENTS

WARNING: ACCIDENTAL ENGINE START UP can cause death or serious injury. ALWAYS stop engine, remove key, wait for moving parts to stop and remove wire from spark plug before adjusting or servicing.

Discharge Chute Deflector

To adjust the drag force, loosen or tighten the two bolts to accomplish the desired drag.

Discharge Chute

If chute does not stay in position while operating, tighten nut on carriage bolt at pivot point to increase tension on spring (Figure 9).

Smooth and easy rotation of properly lubricated chute with crank (without binding) is obtained by adjusting pinion and flat gear teeth so they mesh together.

Adjust, using adjustment slots in pinion bracket which is secured to chute strap.

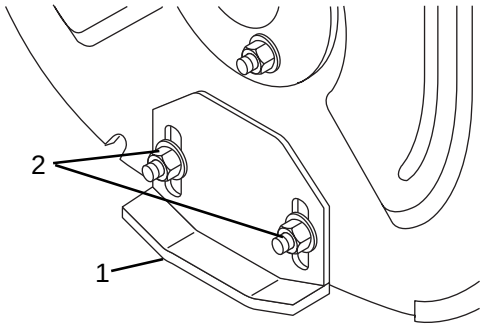
The chute bracket and gear strap are also slotted for vertical adjustment of the discharge chute. Loosen mounting nut and move discharge chute up or down so that chute ring is approximately centered between retainer clip and lower ring. Retighten.

Runners

Runners should be adjusted as conditions require. Raising or lowering runners controls distance scraper blade (auger/impeller housing) is held above surface being cleared.

1. Position unit on a hard, flat smooth level surface.
2. Adjust runners by inserting a spacer of desired thickness under center of scraper blade, loosen runner hardware, slide runners to flat surface (Figure 7). Allow 1/8" (3 mm) between scraper blade and hard smooth surface. Allow 1-1/4" (30 mm) minimum between scraper blade and uneven surface(s).
3. Retighten hardware.

NOTE: Keep housing level by adjusting runners equally. Uneven runners make unit difficult to steer and results in uneven clearing.



1. Runner
2. Runner Hardware

Figure 8

OS0480

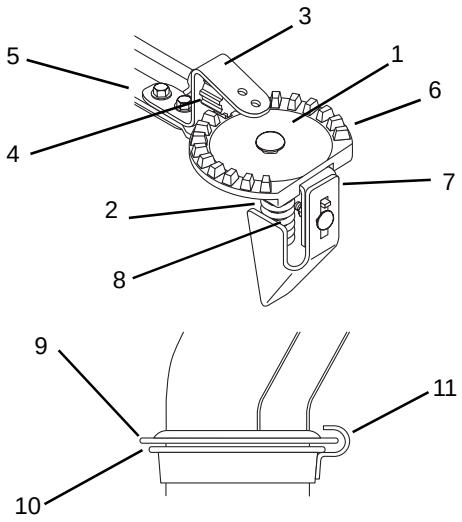
Scraper Blade

IMPORTANT: Damage to auger/impeller housing will result if blade wears down too far.

Scraper blade is adjustable to compensate for wear.

To adjust scraper blade:

1. Tip unit back onto handlebar. Support the housing and loosen scraper blade nuts. With runners adjusted to their full up position, reposition scraper blade down, flush with runners. Tighten lock nuts. Readjust runners if necessary.



1. Carriage Bolt
2. Spring
3. Pinion Bracket
4. Pinion
5. Chute Strap
6. Flat Gear
7. Gear Strap
8. Mounting Nut
9. Chute Ring
10. Lower Ring
11. Retainer Clip

Figure 9

DS0112

Attachment Clutch/Impeller Brake

WARNING: AUGER/IMPELLER MUST STOP within 5 seconds when attachment clutch/ impeller brake lever is released or unit damage or serious injury may result.

ROTATING PARTS can cut off body parts. Keep hands and feet away. Loose clothing, long hair or scarves can get caught in rotating parts and cause death or serious injury.

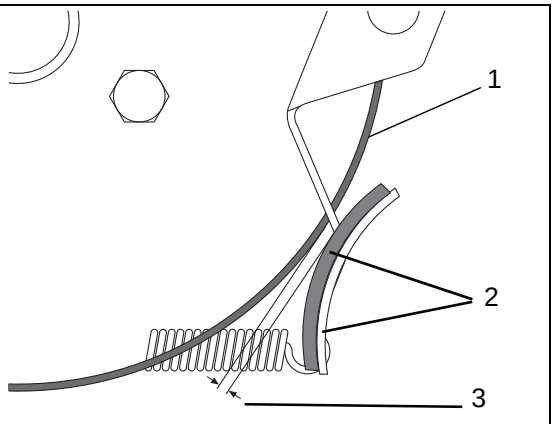
It is necessary to perform the adjustments with the belt guard removed and extreme care is to be taken to prevent injury. Stand well clear of the open belt drive while engine is running.

IMPROPER ADJUSTMENT could result in death or serious injury.

IMPELLER BRAKE MUST DISENGAGE when clutch is engaged. Brake must be 1/16" (1.6 mm) minimum from belt when disengaged.

BELT FINGERS MUST BE between 1/16 to 1/8" (1.6 - 3.2 mm) from belt with attachment clutch engaged or belt grabbing may occur causing impeller to rotate while attachment clutch is disengaged.

There MUST BE a slight amount of slack in cable or impeller may rotate while attachment clutch is disengaged.



1. Drive Belt
2. Brake Shoe and Pad
3. 1/16" (1.6 mm) minimum

Figure 10

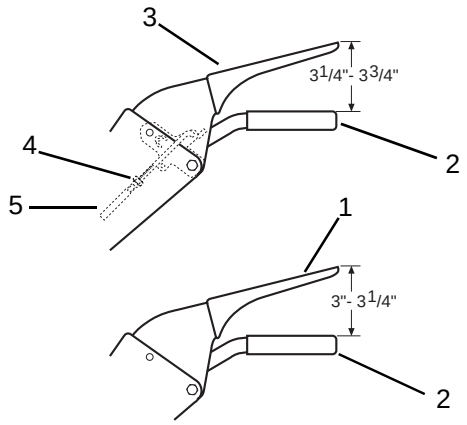
OS0660

To check impeller brake:

1. Tip unit forward onto auger/impeller housing.
2. Remove bottom cover by removing four cap screws.
3. Measure distance between impeller brake shoe pad and belt with attachment clutch engaged (Figure 10). Impeller brake shoe should be 1/16" (1.6 mm) minimum from belt. When attachment clutch is disengaged, brake must contact belt.

To properly adjust attachment clutch/impeller brake:

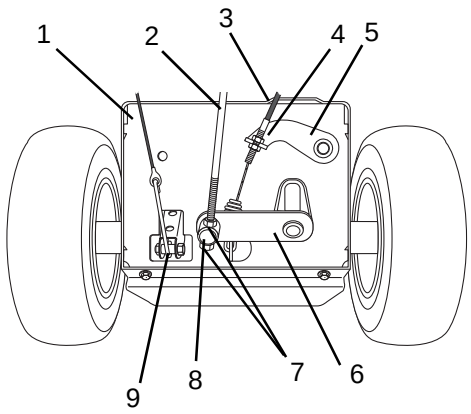
1. Without the engine running, remove the belt cover. Attachment brake is seated against the attachment drive belt when the attachment clutch lever is in the released (full up) position. Adjust the control cable mounting nuts to snug up the control cable, then back off on the top nut 2 turns to provide cable slack for brake wear. Tighten bottom nut.
2. Start engine and run at full throttle. Slowly depress the attachment clutch lever until the auger shaft begins to rotate, observing the bolt at the end of the auger shaft. The measurement between the end of the attachment clutch lever and the handle grip at this point should be between 3" and 3-1/4" (7.62 - 8.25 cm) as shown in Figure 11. If this dimension is not within this range shut off the engine and adjust the attachment drive idler pulley as required. A 1/16" (1.6 mm) adjustment of the attachment drive idler pulley will result in an approximate 1/4" (6.35 mm) change in the attachment clutch control lever engagement position. Moving the attachment drive idler pulley toward the attachment drive belt will increase the dimension between the attachment clutch control lever and the handle grip.
3. Restart the engine and recheck the 3" - 3-1/4" (7.62 - 8.25 cm) dimension.
4. Shut off the engine and install the belt guard.



1. Attachment Clutch Lever
2. Handle Grips
3. Traction Drive Clutch
4. Sleeve Jam Nut
5. Adjustment Sleeve

Figure 11

OS0451



1. Traction Clutch Cable
2. Speed Selector Rod
3. Control Cable
4. Mounting Nuts
5. Attachment Clutch Arm
6. Speed Selector Arm
7. Speed Selector Rod Nuts
8. Swivel
9. Wheel Drive Clutch Arm

Figure 12

OS0491

Traction Drive Clutch

Adjust traction clutch to compensate for wear of friction wheel when slippage occurs.

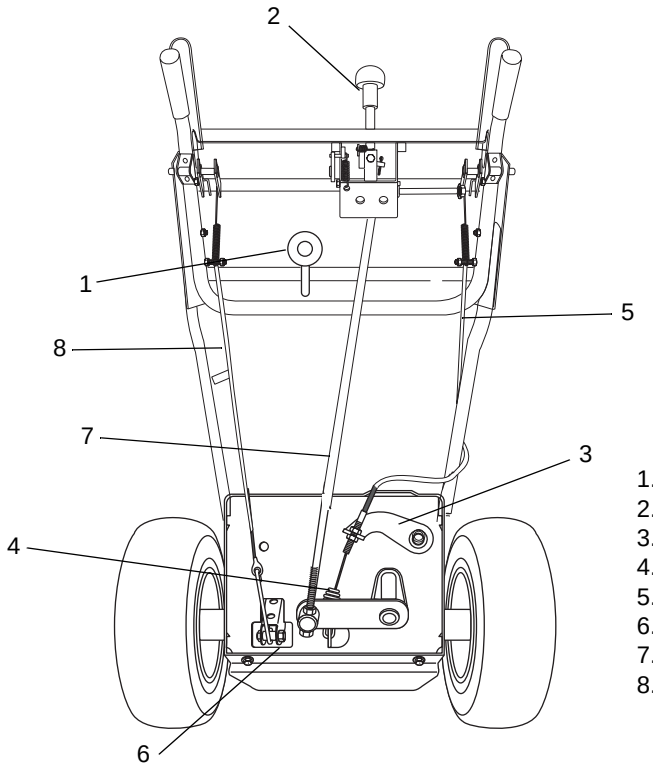
To adjust traction clutch:

1. Place speed selector in First (1) forward and tip unit forward onto housing.
2. With one hand, pull the wheel drive clutch arm upward until a positive stop is obtained (Figure 12). With the other hand move the traction drive clutch lever toward the handle grip until all cable slack is removed, and hold it there.
3. Measure the distance between the lever and handle grip. Proper measurement is 3-1/4 to 3-3/4" (8.25 - 9.52 cm) (Figure 11). Shortening the cable by 1/16" (1.6 mm) with the adjusting sleeve will increase lever-to-handle grip measurement by 1/4" (6.35 mm).
4. Lock adjusting sleeve with jam nut when adjustment is complete. Restrain adjusting sleeve with wrench when applying torque to jam nut.

Speed Selector

To adjust:

1. Loosen the bottom nut on the threaded end of the speed selector rod (Figure 12).
2. Position speed selector in (6) "Fast" speed notch.
3. Position speed selector arm in its maximum down position and tighten both nuts against swivel.



1. Chute Crank Handle
2. Speed Selector Lever
3. Attachment Clutch Arm
4. Clutch Cable Spring
5. Clutch Cable
6. Traction Clutch Arm
7. Speed Selector Rod
8. Traction Clutch Cable

Figure 13

5.1 LOWER HANDLEBAR

Remove nut and washer attaching lower handlebar to each side of frame and remove lower handlebar.

Check parts for wear or replacement.

Assemble, using reverse procedure.

5.2 ATTACHMENT CLUTCH HANDLE

Remove (2) push nuts, pin and (2) screws holding Clutch Handle and pivot to upper handlebar. Remove pivot and disconnect Clutch Handle from clutch cable.

Remove set screw, jam nut and clevis from clutch cable.

Remove pin and remove cable.

Disconnect spring from lever.

Check parts for wear or replacement.

Assemble using reverse procedure.

5.3 WHEEL DRIVE CLUTCH LEVER & TRACTION CABLE

Remove (2) push nuts, pin, and (2) screws holding pivot and wheel drive clutch lever to upper handle bar. Remove pivot and wheel drive clutch lever.

Remove set screw, nut, hair pin and clevis pin holding the clevis to traction clutch cable.

Remove set screw in rod adapter and remove traction clutch cable.

Check parts for wear or replacement.

Assemble using reverse procedure.

SECTION 6 - ENGINE

6.1 ENGINE TROUBLESHOOTING

The following troubleshooting chart is to be used to isolate engine problems and give possible causes and corrective action responses.

The troubleshooting key is generic and can be used for several types of engines. Use only those possible causes and corrective actions that apply to the unit.

TROUBLE	POSSIBLE CAUSES (Refer to Key Below)	CORRECTIVE ACTION
Black Exhaust	1, 20, 22, 25, 29, 31, 32, 33	repair or replace
Blue/White Exhaust	4, 20, 25, 31, 33, 34	repair or replace
Difficult Starting	1, 5, 7, 8, 10, 20, 21, 22, 29, 31, 32, 33	repair or replace
Erratic Running	1, 7, 8, 10, 20, 21, 23, 26, 29, 33, 59, 62	repair or replace
Excessive Fuel Consumption	1, 20, 22, 23, 25, 39, 31, 32, 33	repair or replace
High Oil Pressure	4, 41	repair or replace
Knocking	22, 26, 29, 31, 33, 36, 46, 59	repair or replace
Loss of Power or System	1, 8, 10, 20, 21, 22, 23, 25, 26, 31, 32, 33	repair or replace
Low Cranking Power	2, 3, 4	repair or replace
Low Oil Pressure	4, 36, 37, 39	repair or replace
Misfiring	10, 20, 25, 26, 28, 29, 32	repair or replace
Overheating	1, 19, 25,	repair or replace
Poor Compression	25, 28, 29, 31, 32, 33, 34,59,	repair or replace
Starts and Stops	1, 6, 10, 62	repair or replace see electrical systems see engine service manual
Vibration	20, 23, 25, 26, 29, 33, 49	repair or replace
Will Not Crank	2, 11	charge battery or replace
Will Not Start	1, 10, 62	repair or replace see electrical systems see engine service manual

TROUBLESHOOTING KEY

1	Restriction in air cleaner	22	Incorrect grade of fuel	43	Faulty suction pipe
2	Bad electrical connection	23	Sticking throttle/restricted movement	44	Choked oil filter
3	Faulty starter motor	24	Exhaust pipe restriction	45	Bad solenoid switch
4	Incorrect grade of lubricating oil	25	Leaking cylinder head gasket	46	Incorrect piston height
5	Low cranking speed	26	Overheating	47	Damaged fan
6	Fuel tank empty	27	Cold running	48	Faulty engine mounting
7	Controls not in correct operation position	28	Incorrect tappet adjustment	49	Incorrectly aligned flywheel and/or flywheel housing
8	Blocked fuel feed line	29	Sticking valves	50	Faulty thermostat
9	Faulty fuel lift pump	30	Incorrect high pressure pipes	51	Restriction in water jacket
10	Choked fuel filter	31	Worn cylinder bores	52	Loose fan belt
11	Battery capacity low	32	Pitted valves and seats	53	Choked radiator
12	Air in fuel system	33	Broken, worn or sticking piston ring(s)	54	Faulty water pump
13	Faulty fuel injection pump	34	Worn valve stems and guides	55	Choked breather pipe
14	Faulty fuel injectors or incorrect type	35	Restriction in air cleaner	56	Damaged valve stem oil deflector (if fitted)
15	Incorrect use of cold start equipment	36	Worn or damaged bearings	57	Coolant level too low
16	Faulty cold start equipment	37	Insufficient oil in sump	58	Blocked sump strainer
17	Broken fuel injection pump drive	38	Bad/defective oil temperature switch	59	Broken valve spring
18	Incorrect fuel pump timing	39	Oil pump worn	60	Exhaust or vacuum pipe leak
19	Incorrect valve timing	40	Pressure relief valve sticking open	61	Bad or defective water temperature switch
20	Poor compression	41	Pressure relief valve sticking closed	62	Bad spark plug(s)
21	Blocked fuel tank vent	42	Broken relief valve spring		

See your engine manual for information on the operation and maintenance of your engine. Follow those instructions for oil and filter changes.

6.2 REMOVING THE ENGINE

1. Drain gasoline.
2. Place unit in the Belt Service Position.
3. Remove both belts from the engine pulleys. Remove pulleys.
4. If the unit has a bracket at the top of the engine for chute/deflector controls, unbolt it.
5. If the unit is equipped with electric starting, remove the starter.
6. Remove the four mounting bolts from the engine base.

6.3 INSTALLING THE ENGINE

1. Position the engine in the frame.
2. Insert mounting bolts and tighten.
3. If equipped with electric starting, install the starter.
4. Reattach any brackets for chute/deflector controls.
5. Install pulleys on engine shaft. Do not tighten set screws.
6. Install belts. Adjust the engine pulleys to align with attachment and drive pulleys. Tighten set screws.
7. Take unit out of Belt Service Position.

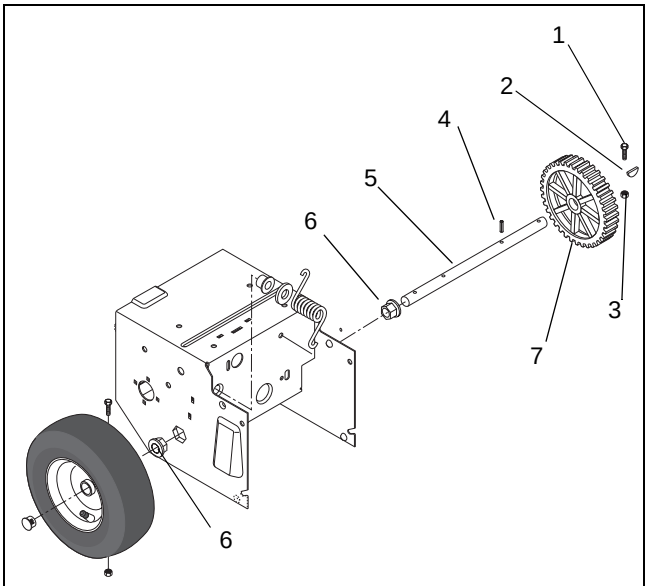
SECTION 7 - REDUCTION DRIVE

7.1 WHEELS AND AXLE

The wheels are bolted directly to the axle shaft. To remove the wheels, loosen the bolt and nut. Push the bolt out and slide the wheel hub off of the axle.

To remove the axle,

1. Place the unit in the Upright Service Position.
2. Remove both wheels.
3. 724 Models- Remove bolt and nut from the gear and slide axle out.
   824 Models - Drive out roll pins from both sides of the gear. Slide the axle to the right and remove gear. Remove the key and slide the axle out.
4. Reassemble in reverse order.



1. Hex Bolt (724 Models only)
2. Woodruff Key (824 Models only)
3. Locking Top Nut (724 Models only)
4. Roll Pin (824 Models only)
5. Axle Shaft
6. Bushing
7. Gear

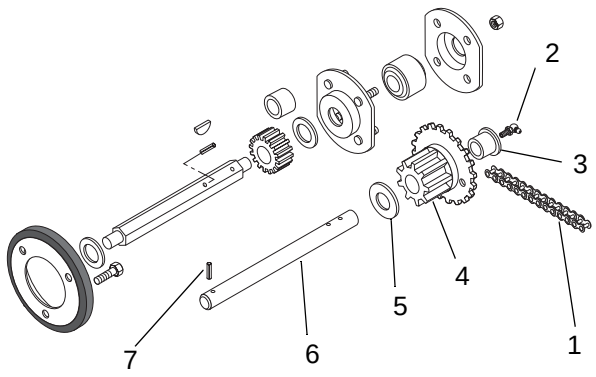
Figure 14

7.2 SPROCKET AND CHAIN - 824 MODELS ONLY

The 824 models have a reduction sprocket driven by the friction wheel hex shaft (Figure 15). This shaft is removed to change the chain and to provide clearance for inspection.

To remove the pinion and pinion shaft:

1. Place unit in the Upright Service Position.
2. Remove wheels.
3. Drive the two roll pins out of the shaft. Note the location of the washers at the pinion gear.
4. Slide pinion shaft out the right hand side.
5. Remove chain and pinion gear.
6. When reassembling the pinion shaft be certain the roll pins are properly installed. The roll pin away from the gear must be seated in the notches in the frame.



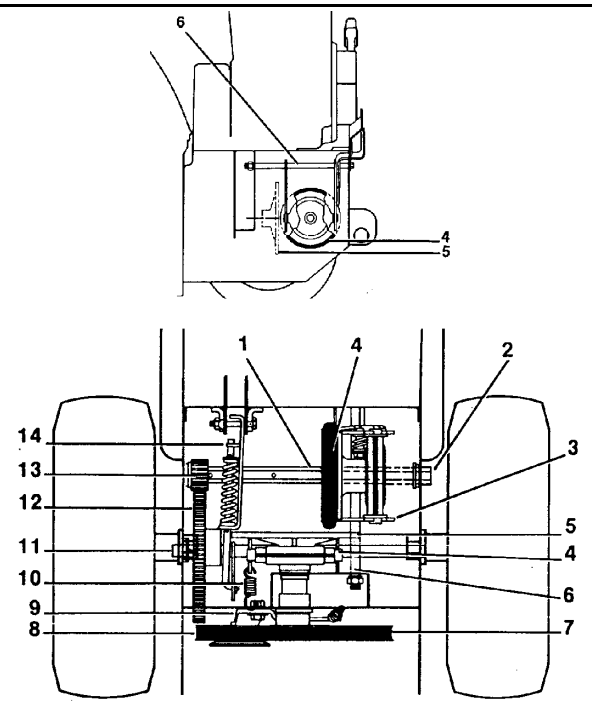
1. Roller Chain
2. Hydraulic Drive Fitting
3. Bushing
4. Sprocket Assembly
5. Washer
6. Pinion Shaft
7. Roll Pin

Figure 15

SECTION 8 - FRICTION WHEEL DRIVE

8.1 FRICTION WHEEL

1. To replace friction wheel, tip unit up onto housing on a level surface.
2. Remove bottom cover by removing four cap screws.
3. Remove right hand wheel, tire.
4. Remove bearing flange screws on the right hand side of the frame. Remove bearing flange on frame (Figures 16 and 17).
5. Remove the hairpin from the traction clutch rod and disconnect traction drive lower linkage.
6. Remove cotter pin from traction clutch rod clevis pin, pull rod from clutch fork arm and tip up and out of the way.
7. Slide friction wheel assembly and hex shaft to right until left end of hex shaft comes free of left bearing. Slip assembly back to left and pull forward out of frame.



1. Hex Shaft
2. Bearing Flange
3. Sliding Forks
4. Friction Wheel
5. Drive Plate
6. Clutch Fork
7. Drive Pulley
8. Drive Belt
9. Idler Arm
10. Spring
11. Axle Shaft
12. Large Gear
13. Pinion Gear
14. Traction Clutch Assembly

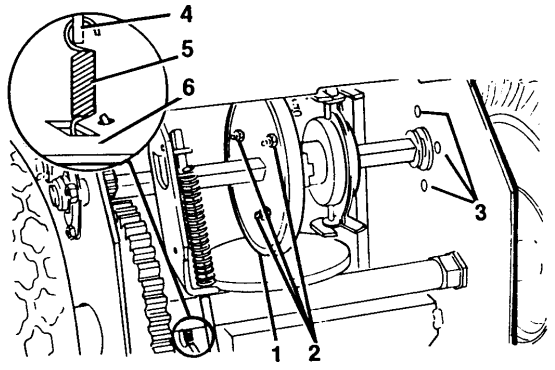
Figure 16

NOTE: The 824 Models have a sprocket assembly with chain drive. Slide the sprocket off the shaft and remove (see Figure 19).

8. Remove three cap screws securing friction wheel to hub and remove friction wheel.
9. Secure new friction wheel onto hub with three cap screws and torque cap screws to 8-10 ft. lbs. (10.8-13.6 Nm).
10. Place one of the washers onto the bottom bearing flange pin and hold in place, rotate the hex shaft with the friction wheel assembly into the housing.
11. Lift up on the shift arm assembly to gain clearance between the drive plate and friction wheel. Align the bearing assembly into the sliding forks placing bottom flange pin into the forks first.
12. Place the other washer onto the top flange pin and rotate it into the top fork. Be sure the washers are on the inside of the forks.

NOTE: On 824 Models install sprocket and bushing.

13. Slide hex shaft to left and into left bearing with flat washers in position. Pinion gear must mesh with the large gear. Ensure the flat washer is between the bearing and the pinion gear.
14. Place the flat washer on the right end of the hex shaft.
15. Install the bearing flange on the right side of frame.
16. Slide the traction clutch rod up and into the frame and connect to the traction drive lower linkage with clevis and cotter pin.
17. Reconnect the traction clutch rod to the lower linkage.
18. Adjust traction drive clutch. Refer to *Adjustments*.



1. Cap Screw
2. Friction Wheel
3. Friction Wheel Shift Arm
4. Idler Hex Shaft
5. Cotter Pin

Figure 17

8.2 FRICTION WHEEL CARRIER

The friction wheel carrier is not repairable and is replaced when needed. Inspect the carrier when the friction wheel is serviced.

8.3 DRIVE PLATE

The drive plate can be removed and inspected when the drive system, friction plate, and axle have been removed. Refer to the appropriate sections of this manual for more information.

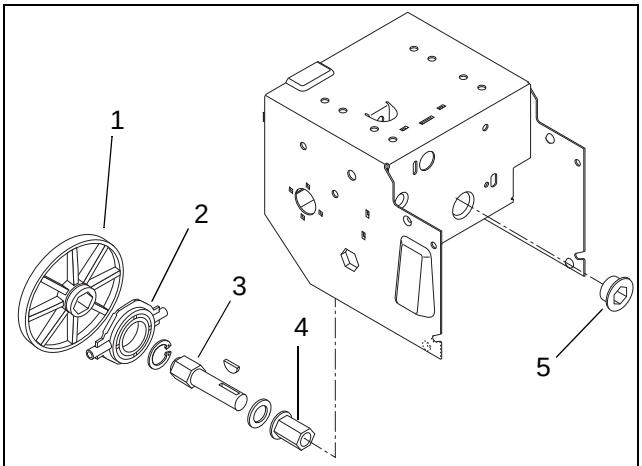
1. Disconnect the drive plate return spring.
2. Lift drive plate off the hex shaft.
3. Inspect for wear.
4. When reassembling apply anti-seize to the shaft before installing the drive plate.

8.4 DRIVE PLATE HEX SHAFT

To remove the shaft (Figure 18), place the unit in the Belt Service Position. Remove the front half of the frame.

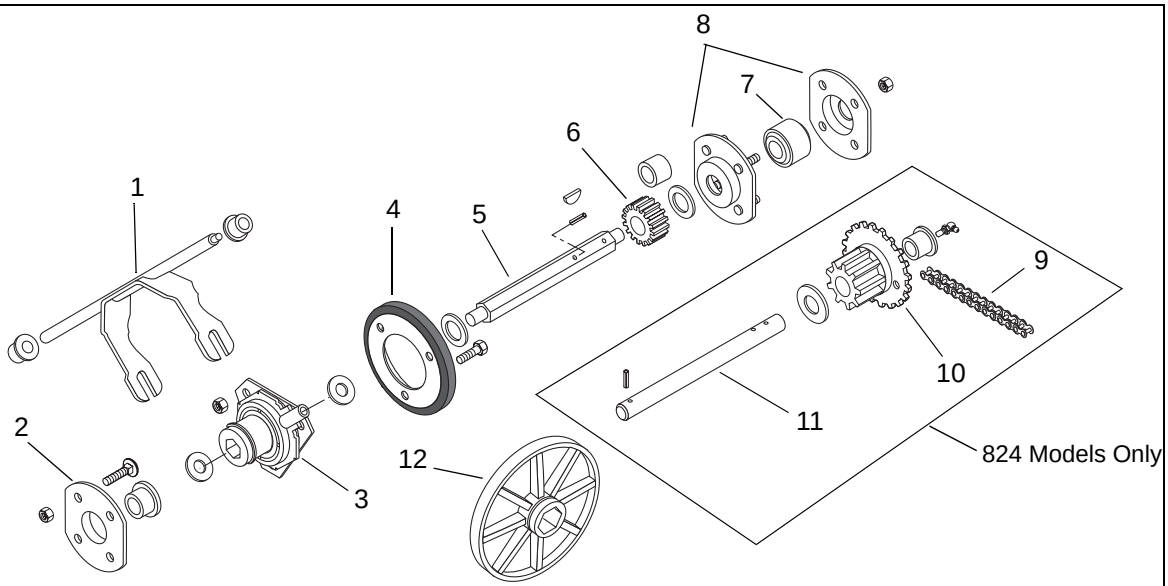
1. Remove the belt from the pulley.
2. Unscrew the three bolts from the pulley and remove the pulley.
3. The hub is removed by loosening the set screws. Slide the hub off the shaft.
4. Remove the hub key.
5. Tip the frame forward and remove the drive system, friction wheel, and drive plate. Refer to appropriate sections of this manual for more information.
6. Pull the shaft out of the bushing.
7. Reassemble in reverse order.

When installing the drive plate to the hex shaft, use anti-seize on the shaft.



1. Friction Plate
2. Bearing Assembly
3. Hex Shaft
4. Bushing
5. Bushing

Figure 18



1. Speed Fork Weld Assembly
2. Bushing
3. Shift Carrier
4. Friction Disc
5. Hex Shaft
6. Pinion
7. Ball Bearing
8. Bearing Flange
9. Roller Chain (824 Models only)
10. Sprocket Assembly (824 Models only)
11. Pinion Shaft (824 Models only)
12. Friction Plate

Figure 19

SECTION 9 - AUGER/IMPELLER

9.1 AUGER/IMPELLER REMOVAL

Place unit in the Belt Service Position.

1. Remove three nuts holding pulley to hub and remove pulley and key.
2. Loosen set screw in hub and remove hub.
3. Remove three nuts holding bearing flange to housing and remove bearing flange (Figure 20).
4. Remove two cap screws and lock washers on each side of blower housing holding rake shaft in position and remove bushing.
5. Remove three lock nuts attaching bearing support to housing and remove bearing support.
6. Grasp auger assembly and pull gear case and auger/impeller assembly free of housing.
7. Drive roll pin out of shaft ends, remove shear bolts and remove auger from shaft.
8. Check all parts for wear or replacement.
9. Assemble using reverse procedure.

9.2 SCRAPER BLADE

IMPORTANT: If blade wears too far auger/impeller housing may be damaged.

Scraper blade is adjustable to compensate for wear.

To adjust scraper blade:

1. Tip unit back onto handlebar and support the housing.
2. Loosen retaining blade nuts (Figure 20).
3. With runners adjusted to their full up position, reposition scraper blade down, flush with runners.
4. Tighten lock nuts.

9.3 SHEAR BOLTS

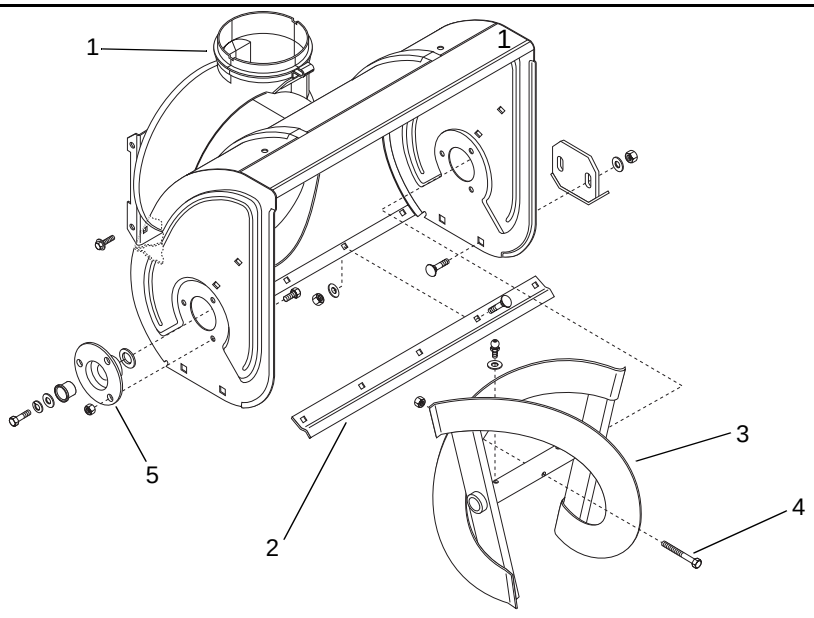
WARNING: Stop engine, remove key, wait for moving parts to stop and remove wire from spark plug before leaving operator's position and attempting to maintain or inspect auger.

IMPORTANT: Use only Ariens shear bolts for replacement. Use of any other type of shear bolt may result in severe damage to unit.

Occasionally an object may enter auger/impeller housing and jam auger, breaking shear bolts which secures auger to shaft. This allows auger to turn freely on shaft preventing damage to gear drive.

To replace shear bolt:

1. Slide auger outward against roll pin and align hole in shaft with hole in auger (Figure 20) (holes in shaft for roll pins and shear bolts line up).
2. Drive the new shear bolt through hole (if shear bolt was broken this will drive remaining part from shaft).
3. Secure with nut.



1. Auger/Impeller Housing
2. Scraper Blade
3. Rake
4. Shear Bolt with Nut
5. Bearing Flange

Figure 20

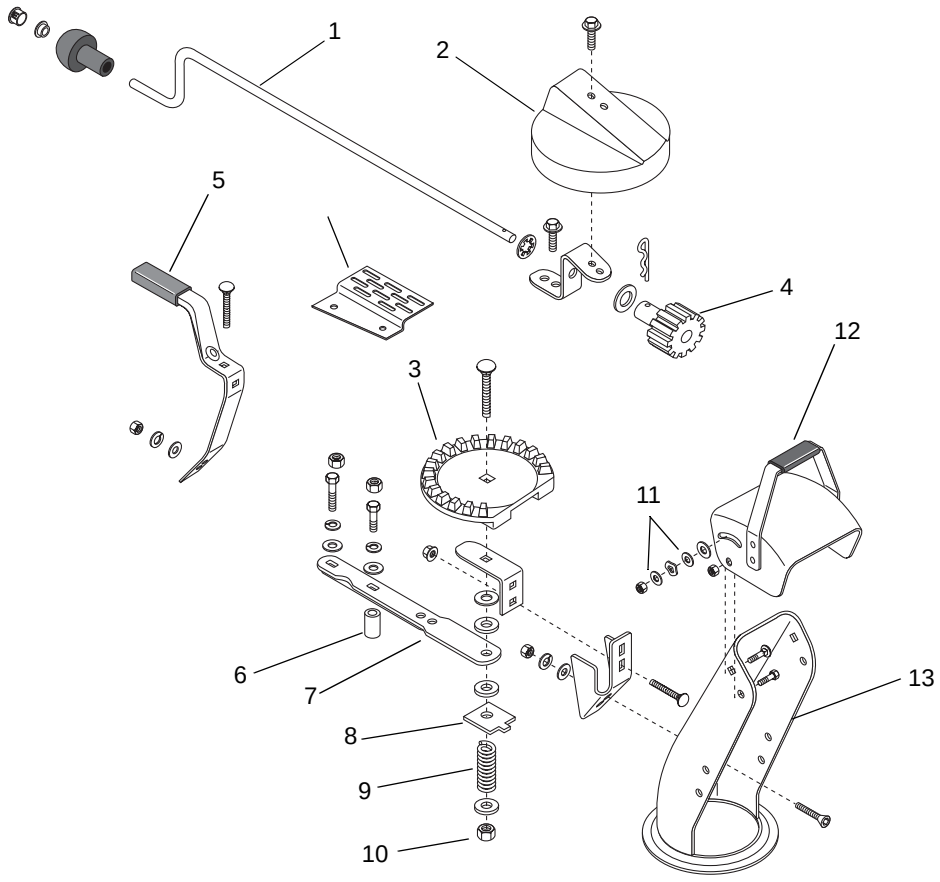
9.4 DISCHARGE CHUTE

WARNING: DO NOT put hands or feet near or under rotating parts. Keep clear of discharge opening at all times.

WARNING: NEVER direct discharge of material toward bystanders nor allow anyone in front of equipment while unit is in operation. Be familiar with area of operation.

To remove discharge chute unbolt the chute positioning assembly from the discharge chute. Tip discharge chute forward and lift.

NOTE: Chute must rotate freely. To adjust the gears tighten or loosen the lower nut (Figure 21). This will adjust the spring tension on the gears.



1. Chute Crank
2. Gear Cover
3. Chute Gear
4. Pinion Chute
5. Chute Handle
6. Spacer
7. Strap
8. Friction Plate
9. Compression Spring
10. Locking Nut
11. Washer
12. Deflector
13. Discharge Chute

Figure 21

9.5 RUNNERS

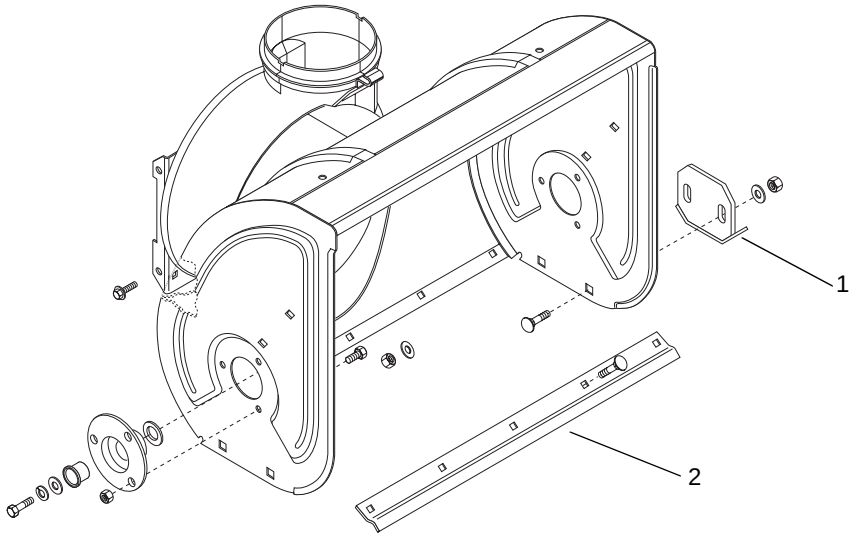
CAUTION: Adjust auger/impeller housing height to clear gravel or crushed rock surfaces.

Runners should be adjusted as conditions require (Figure 22). Raising or lowering runners controls distance scraper blade is held above surface being cleared.

When operating machine on gravel surface, lower runners so that housing will not pick up gravel. On concrete, blacktopped or packed down snow surfaces, raise runners so that scraper blade scrapes clean. To reduce tendency of housing to ride up over heavy wet or hard-packed snow, remove runners and re-install with the narrow edge down.

Position unit on a flat level surface. Adjust runners by inserting a spacer of desired thickness under center of scraper blade, loosen hardware, slide runners to flat surface and retighten hardware.

NOTE: Above method keeps housing level by adjusting runners equally. Uneven runners make machine difficult to steer and results in uneven clearing.



1. Runner
2. Scraper

Figure 22

SECTION 10 - GEAR CASE

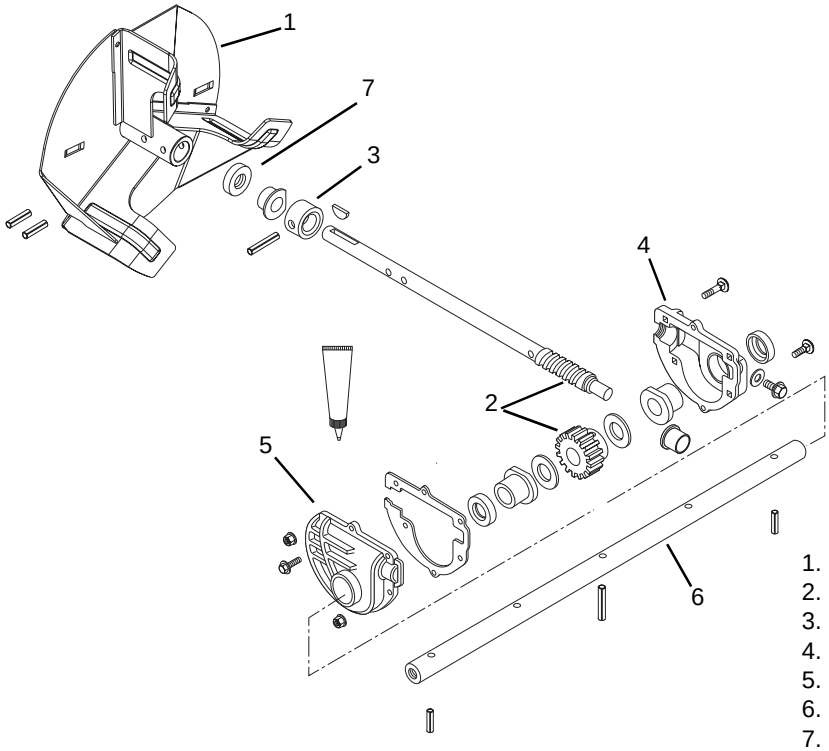
10.1 ALUMINUM GEAR CASE

1. Remove auger/impeller and gear case from housing referring to *Auger/Impeller* Section.
2. Remove six bolts that hold right and left gear case halves together (Figure 23).
3. If flange bushings need replacement, first remove seals from outside of gearcase halves with a screwdriver. Flange bushings can then be pressed out from outside in with a bearing driver. Bushings are very lightly pressed in.
4. When replacing bushings make sure the flat on the flange of bushing fits in the inside notch of the case.
5. There are two special washers, one on either side of bronze gear. If burred or worn they should be replaced.
6. Holding bronze gear on rake shaft is a groove pin. When driving out, drive in direction of least resistance. the flat on bronze gear face will fill the hole in the side of the gearcase.
7. Remove bronze bushing from front of worm shaft by sliding it off. Replace if necessary. Notice that a flat on the bushing flange positions the bearing inside the gearcase.
8. Behind rear bronze bushing is a seal which fits into a groove in gearcase. It should be replaced at time of repair.
9. Rear bushing is a larger diameter than one in front, but are identical in design. Replace if necessary.
10. If replacement of thrust collar is necessary, again drive out groove pin towards direction of least resistance.
11. Inspect worm for burrs or black coloration. If either show up, replace shaft.
12. For re-assembly, replace the gasket with P/N 00031700 (use Loctite 518 provided). Make sure the flats on the bushings are in their proper place.

This case requires Ariens L-2 P/N 00008000 and should be half full.

After assembly is complete you should be able to turn input shaft freely.

Auger/impeller gearcase is lubricated with Ariens L-2 (P/N 00008000). Check lubrication by removing filler plug. Lubrication should be even with hole with unit sitting level. It may be necessary to insert a wire into the hole to check level. Unit will not be damaged by over-lubricating.



1. Impeller
2. Worm Shaft and Gear Assembly
3. Thrush Collar
4. Case, Left Side, Large Bore
5. Case, Right Side, Small Bore
6. Rake Shaft
7. Seal

Figure 23

PS0281

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